

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference E01/1386/WO	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 03/08602	International filing date (day/month/year) 01/08/2003	(Earliest) Priority Date (day/month/year) 02/08/2002
Applicant EPIGENOMICS AG		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 8 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures.

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Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The invention describes a method for amplifying nucleic acids, such as DNA with means of an enzymatic amplification step, such as a polymerase chain reaction, specified for template nucleic acids of low complexity, e.g. pre-treated DNA, like but not limited to DNA pre-treated with bisulfite is disclosed. The invention is based on the use of specific oligo-nucleotide primer molecules to solely amplify specific pieces of DNA. It is disclosed how to optimize the primer design for a PCR if the template DNA is of low complexity.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, EMBASE, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 62960 A (BERLIN KURT ;EPIGENOMICS AG (DE); OLEK ALEXANDER (DE)) 30 August 2001 (2001-08-30) page 10, line 9 - line 12; claims 1-26 page 13, line 10 - line 29	1-51
X	HERMAN J G ET AL: "METHYLATION-SPECIFIC PCR: A NOVEL PCR ASSAY FOR METHYLATION STATUS OF CPG ISLANDS" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, vol. 93, 1 September 1996 (1996-09-01), pages 9821-9826, XP002910406 ISSN: 0027-8424 cited in the application page 9821 -page 9823	1-51
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *&* document member of the same patent family

Date of the actual completion of the international search

10 December 2003

Date of mailing of the international search report

02/01/2004

Name and mailing address of the ISA

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Authorized officer

Favre, N

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 786 146 A (HERMAN JAMES G ET AL) 28 July 1998 (1998-07-28) page 6, line 1 -page 7, line 6; claim 1 ---	1-51
X	WO 01 44504 A (FOX JAYNE CATHERINE ;HAQUE KEMAL (GB); LITTLE STEPHEN (GB); ASTRAZ) 21 June 2001 (2001-06-21) page 6, line 26 -page 8, line 7; figure 1 ---	1-51
X	WO 98 56952 A (UNIV SOUTHERN CALIFORNIA) 17 December 1998 (1998-12-17) page 9, line 20 -page 10, line 2; claims 9,10 ---	1-51
X	REIN ET AL: "Identifying 5-methylcytosine and related modifications in DNA genomes" NUCLEIC ACIDS RESEARCH, OXFORD UNIVERSITY PRESS, SURREY, GB, vol. 26, no. 10, 1998, pages 2255-2264, XP002143106 ISSN: 0305-1048 cited in the application abstract; figure 2 ---	1-51
X	WO 00 70090 A (UNIV SOUTHERN CALIFORNIA) 23 November 2000 (2000-11-23) page 13, line 29 -page 14, line 34; claim 1 ---	1-51
X	ZESCHNIGK M ET AL: "A SINGLE-TUBE PCR TEST FOR THE DIAGNOSIS OF ANGELMAN AND PRADER-WILLI SYNDROME BASED ON ALLELIC METHYLATION DIFFERENCES AT THE SNRPN LOCUS" EUROPEAN JOURNAL OF HUMAN GENETICS, KARGER, BASEL, CH, vol. 5, no. 2, 1997, pages 94-98, XP009011533 ISSN: 1018-4813 cited in the application abstract; figure 1 ---	1-51
A	GRIFFIN HG AND GRIFFIN AM (EDS.): "PCR TECHNOLOGY: Current Innovations" 1994 , CRC PRESS , BOCA RATON XP008025537 page 5 -page 11 ---	1-51
A	US 6 007 231 A (BISHOP ROBERT ET AL) 28 December 1999 (1999-12-28) the whole document ---	1-51

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SEIJEN A M ET AL: "Systematic design of mouse Vh gene family-specific oligonucleotides" JOURNAL OF IMMUNOLOGICAL METHODS, ELSEVIER SCIENCE PUBLISHERS B.V.,AMSTERDAM, NL, vol. 254, no. 1-2, 1 August 2001 (2001-08-01), pages 161-168, XP004245450 ISSN: 0022-1759 the whole document ----	1-51
A	WO 00 49177 A (DU PONT ;ROUVIERE PIERRE (US)) 24 August 2000 (2000-08-24) the whole document ----	1-51
A	SCHULER G D: "SEQUENCE MAPPING BY ELECTRONIC PCR" GENOME RESEARCH, COLD SPRING HARBOR LABORATORY PRESS, US, vol. 7, 1997, pages 541-550, XP000872176 ISSN: 1088-9051 cited in the application the whole document ----	1-51
A	ENGELS W R: "Contributing software to the internet: the Amplify program" TRENDS BIOCHEM. SCI., vol. 18, 1993, pages 448-450, XP001161002 the whole document ----	1-51
P,X	US 2003/068625 A1 (BARRETT WADE A ET AL) 10 April 2003 (2003-04-10) claims 1-32; figures 1-4 -----	39-51

FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210

Continuation of Box I.1

Insofar as they include the step of isolating a nucleic sample, i.e. a step which could be performed on the living human or animal body, claims 1-38 relate to a method of treatment and/or diagnostic performed on the living human or animal body, the search has been carried out and restricted on in vitro methods.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/08602

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0162960	A	30-08-2001	DE 10010282 A1	06-09-2001
			AU 4227701 A	03-09-2001
			CA 2401233 A1	30-08-2001
			WO 0162960 A2	30-08-2001
			EP 1257670 A2	20-11-2002
			JP 2003525041 T	26-08-2003
			US 2003157510 A1	21-08-2003
US 5786146	A	28-07-1998	CA 2257104 A1	11-12-1997
			EP 0954608 A1	10-11-1999
			IL 127342 A	25-07-2002
			JP 2000511776 T	12-09-2000
			WO 9746705 A1	11-12-1997
			US 6200756 B1	13-03-2001
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			US 6017704 A	25-01-2000
WO 0144504	A	21-06-2001	AU 2194801 A	25-06-2001
			WO 0144504 A2	21-06-2001
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			US 6251594 B1	26-06-2001
			WO 9856952 A1	17-12-1998
			US 2002177154 A1	28-11-2002
			US 2003211473 A1	13-11-2003
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			AU 4712200 A	05-12-2000
			CA 2372665 A1	23-11-2000
			EP 1185695 A1	13-03-2002
			JP 2002543852 T	24-12-2002
			WO 0070090 A1	23-11-2000
			US 2002086324 A1	04-07-2002
US 6007231	A	28-12-1999	AU 3632097 A	06-03-1998
			CA 2263731 A1	19-02-1998
			EP 0925372 A1	30-06-1999
			WO 9806872 A1	19-02-1998
WO 0049177	A	24-08-2000	CA 2359645 A1	24-08-2000
			EP 1153141 A2	14-11-2001
			WO 0049177 A2	24-08-2000
			US 2003113886 A1	19-06-2003
			US 6365376 B1	02-04-2002
			US 2002127666 A1	12-09-2002
US 2003068625	A1	10-04-2003	WO 03021259 A1	13-03-2003
			US 2003108919 A1	12-06-2003
			US 2003073093 A1	17-04-2003